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COMPARISON OF MIST BED AND ONCE-A-DAY WATERING FOR GERMINATING PINE SEED AT THE RESISTANCE SCREENING CENTER, N.C.

By

Carol Young, Biological Technician; Robert Anderson, Supervisory Pathologist; and Elinor Earle, Biological Technician

For the past several years, seed at the Resistance Screening Center have been stratified, floated, surface sterilized and germinated in trays filled with vermiculite under a mist system. The mist system came on every 3 minutes for 6 seconds and the heating coils maintained a media temperature of 98°F. Fred Matthews from the SEFES recommended that the mist system be discontinued and the seed be watered once-a-day. This evaluation was done to determine the benefits from once-a-day watering over misting at the Resistance Screening Center.

OBJECTIVE

To compare once-a-day watering with misting for germinating seed at the Resistance Screening Center.

METHODS

FA-2(4) seed source was selected for the evaluation because it was a check seed source and we knew that 35 percent of the seed had internal Fusarium sp.

One hundred FA-2(4) seeds were placed in each of four trays on May 22, 1978. Two of the trays were watered once every week day for 30 days and two were placed under the mist system for 30 days. Germination counts were taken at 3-day intervals. The remaining seeds were split, sterilized in 10 percent chlorox and plated on PDA to determine the presence of seed fungi.

On June 12, 1978, one hundred FA-2(4) seeds were placed in each of four trays. Two trays were watered once each week day and two were watered using the mist system. At 30 days, all germinated seedlings were dipped in 10 percent chlorox for 10 minutes and placed on PDA.

RESULTS

Germination for the once-a-day watered trays was more rapid and much higher (67 percent) than those kept in the mist beds (35 percent) (Figures 1 & 2). About 90 percent of the seeds remaining in each tray had internal fungi, thus, giving 20 remaining infected seeds per tray in the once-a-day watered beds and 58 in the mist beds.

The percent germination for the second run of trays was about the same as the first run. The percents were 61 percent for the once-a-day watered trays and 34 percent for the mist watered trays. Five percent of the seedlings had internal Fusarium sp. regardless of the method of watering.

DISCUSSION

Once-a-day watering is more desirable for germinating seed at the Resistance Screening Center. The increase in percent of seed with internal fungi after 30 days under the mist system indicates that the high constant moisture conditions favor the spread and/or development of the fungi.

CONCLUSION

The mist system at the Resistance Screening Center should be changed to come on once-a-day for 15 minutes.

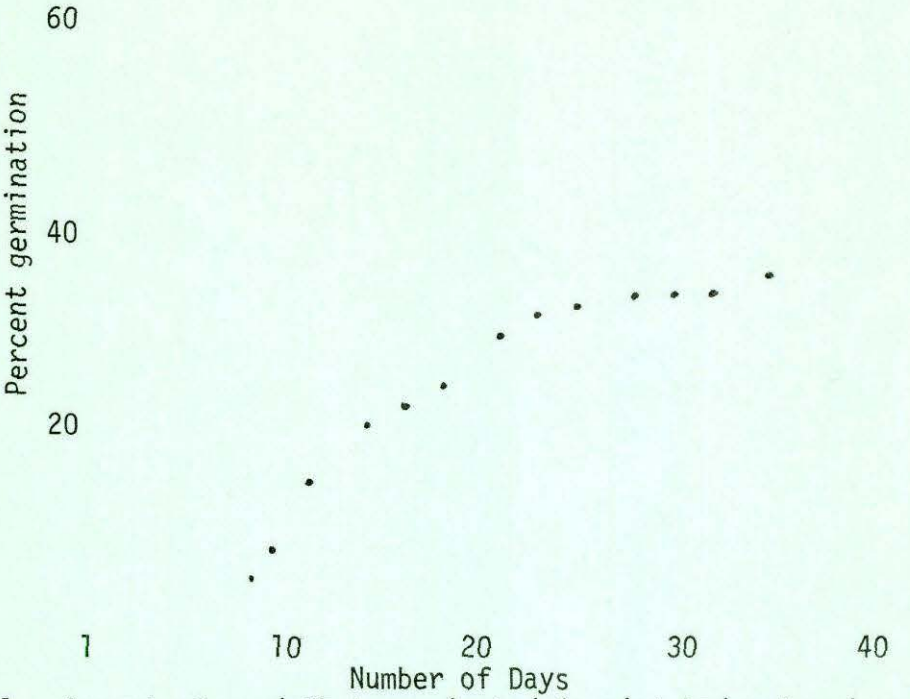

Figure 1. Amount of seed that germinated in mist bed watered seed at the Resistance Screening Center.

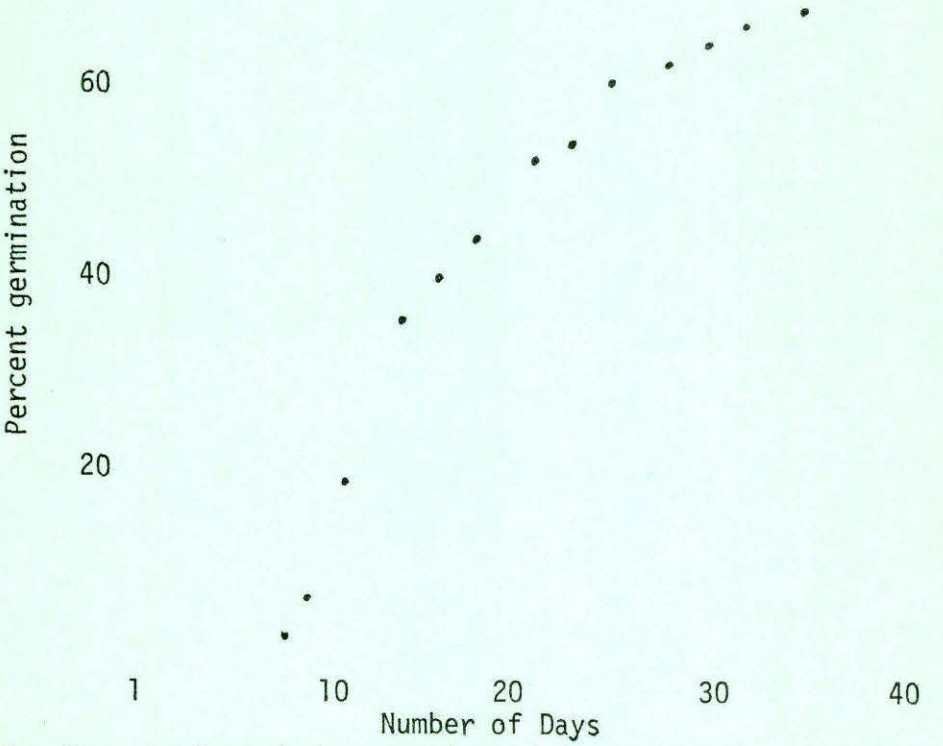

Figure 2. Amount of seed that germinated in once-a-day watered seed at the Resistance Screening Center.